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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/608,139

06/30/2003

Sanjay Ghemawat

0026-0029

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11/01/2006

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EXAMINER

THAI, HANH B

ART UNIT

PAPER NUMBER

2163

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,139

Applicant(s)

GHEMAWAT ET AL.

Examiner

Hanh B. Thai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment file 8/18/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 19-27 is/are pending in the application.
- 4a) Of the above claim(s) 9-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 19-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The following is Final Office Action in response to the communication received on August 18, 2006.

Response to Arguments

2. Applicant's arguments regarding 101 issues are not found persuasive. Applicant's claim does not do an action statement, for instance, applicant's claim language of identifying servers and placing the replicas of the data at the identified servers does not render a result. Applicant needs to use language such as in dependent claim 4: use of "identifying servers to store replicas of the data."

3. Applicant's argument regarding "identifying ones of the servers to store a replica of the data" (response 8/18/06, pages 13-22) have been considered but not found persuasive.

Jindal discloses the request for replicated service or application among a plurality of servers combine a central replicated monitor object (see abstract; col.4, lines 49-67; col.5, lines 56-63; col.7, lines 34-47, Jindal) clearly illustrate the storing of replicas of the data as demonstrated in applicant's claimed language of identifying and storing the replicas of the data.

4. Applicant's argument regarding "redistribute of the replicas" (response 8/18/06, pages 23-26) have been considered but not found persuasive.

The replicated system has to have the ability of redistribution. Jindal clearly discloses the replicated services include the redistribution based on utilization of server (i.e. "referred server") as illustrated in the claimed language.

Examiner was referring to the fact that Jindal reference does not explicitly reads on applicant's specific claim language. Therefore, examiner submitted Narendran for the teaching

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of redistribution or redirection of the data. Examiner considers both redistribution and redirection of data (see abstract and summary, Narendran) as being the movement of data from point A to point B and vice versa (as well as point C, D and F).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-8 and 19-27 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility.

Regarding claims 1, 8, 19, 26 and 27, each of the independent claims merely identifies or defines a data process in which to be manipulated without giving rise to a concrete, useful and tangible result. Thus, the claims are directed to non-statutory subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Jindal et al. (US 6,324,580 B1).

Regarding claim 1, Jindal discloses a method for distributing data in a system that includes a plurality of servers, the method comprising:

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- identifying ones of the servers to store a replica of the data based on at least one of utilization of the servers, prior data distribution involving the servers, or failure correlation properties associated with the servers (abstract; summary; col.4, lines 40-67 and col.5, lines 57-60); and
- placing the replicas of the data at the identified servers (abstract; summary and col.4, lines 40-67).

Regarding claim 2, Jindal discloses the method wherein the identifying ones of the servers include: identifying underutilized ones of the servers as candidates to store the replicas of the data (abstract; summary and col.4, lines 40-67).

Regarding claim 3, Jindal discloses the method wherein the underutilized servers are identified based on disk space usage below a determined amount (col.4, lines 40-67; col.5, lines 57-60; col.6, lines 32-46 and col.7, lines 11-47).

Regarding claim 4, Jindal discloses the method wherein the identifying ones of the servers include: identifying ones of the servers that have not been involved in a recent data distribution as candidates to store the replicas of the data (abstract; summary; col.4, lines 40-67 and col.5, lines 57-60).

Regarding claim 5, Jindal discloses the method wherein the identifying ones of the servers includes: identifying system conditions that affect two or more of the servers, and identifying ones of the servers as candidates to store the replicas of the data based on the identified system conditions (col.4, lines 40-67; col.5, lines 57-60 and col.6, lines 32-46).

Regarding claim 6, Jindal discloses the method wherein a number of the replicas of the data stored by the servers is user-configurable (abstract; summary; col.4, lines 40-67 and col.5, lines 57-60).

Regarding claim 7, Jindal discloses a system for distributing chunks in a network that includes a plurality of servers, comprising:

- means for selecting ones of the servers to store replicas of the chunks based on at least one of utilization of the servers, prior chunk distribution involving the servers, or failure correlation properties associated with the servers (abstract; summary; col.4, lines 40-67 and col.5, lines 57-60); and
- means for storing the replicas of the chunks at the selected servers (abstract; summary; col.4, lines 40-67 and col.5, lines 57-60) to at least one of increase reliability of the chunks, increase availability of the chunks, or increase bandwidth utilization in the system (col.6, lines 31-45, Jindal).

Regarding claim 8, Jindal discloses a file system, comprising:

- a plurality of servers that store replicas of chunks (abstract; summary; col.4, lines 40-67 and col.5, lines 57-60); and
- a master ("central server", abstract) connected to the servers (abstract; summary; col.4, lines 40-67 and col.5, lines 57-60), the master being configured to:
 - o identify one or more of the servers to store a replica of a chunk based on at least one of utilization of the servers, prior chunk distribution involving the servers, or failure correlation properties associated with the servers, and place

the replicas of the chunk at the identified one or more servers (abstract; summary; col.4, lines 40-67 and col.5, lines 57-60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 19-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jindal et al. (US 6,324,580 B1) in view of Narendran et al. (US 6,070,191).

Regarding claim 19, Jindal discloses a method for distributing chunks of data in a system that includes a plurality of servers that store replicas of the chunks, the method comprising:

- monitoring utilization of the servers (col.5, lines 57-60 and col.6, lines 56-64, Jindal);
- determining whether to distribute any of the replicas (col.6, lines 31-45 and 56-64, Jindal);
- selecting one or more of the replicas to distribute based on the utilization of the servers (col.6, lines 31-45 and 56-64, Jindal);
- selecting one or more of the servers to which to move the one or more replicas (col.6, lines 31-45 and 56-64, and col.8, line 53 to col.9, line 27 Jindal); and
- moving the one or more replicas to the selected one or more servers (col.6, lines 31-45 and 56-64, and col.8, line 53 to col.9, line 27 Jindal).

Jindal, however, does not explicitly disclose redistribute the replicas. Narendran, on the other hand, discloses data distribution techniques for load-balanced fault-tolerant web

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access including redistributing replicated data from the failed server to achieve rebalance (see col.12, lines 12-38, Narendran). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the redistributing or rebalance technique of Narendran to derive the invention as claimed. The motivation of doing so would have been to provide an efficient system that can obtain a maximum flow with a minimum cost of a network flow system (abstract of Narendran).

Regarding claim 20, Jindal/Narendran combination discloses the method wherein the utilization of the servers relates to an amount of free disk space available at the servers (col.5, lines 1-20, Narendran).

Regarding claim 21, Jindal/Narendran combination discloses the method wherein the selecting one or more of the servers includes: identifying underutilized ones of the servers as candidates to which to move the one or more replicas (col.6, lines 31-45 and 56-64, and col.8, line 53 to col.9, line 27 Jindal).

Regarding claim 22, Jindal/Narendran combination discloses the method wherein the underutilized servers are identified based on disk space usage below a determined amount (col.5, lines 1-20, Narendran).

Regarding claim 23, Jindal/Narendran combination discloses the method wherein the selecting one or more of the servers includes: identifying ones of the servers that have not been involved in a recent redistribution as candidates to which to move the one or more replicas (col.6, lines 31-45 and 56-64, and col.8, line 53 to col.9, line 27 Jindal).

Regarding claim 24, Jindal/Narendran combination discloses the method wherein the selecting one or more of the servers includes: determining failure correlation properties

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associated with the servers, and identifying ones of the servers based on the failure correlation properties as candidates to which to move the one or more replicas (col.6, lines 28-51, Narendran).

Regarding claim 25, Jindal/Narendran combination discloses the method wherein the moving the one or more replicas includes: deleting the one or more replicas from one or more of the servers, and instructing the selected one or more servers to copy the one or more replicas from another one or more of the servers (col.6, lines 31-45 and 56-64, and col.8, line 53 to col.9, line 27 Jindal).

Regarding claim 26, Jindal discloses a system for distributing data in a network that includes a plurality of servers that store replicas of the data, the system comprising:

- means for monitoring utilization of the servers (col.5, lines 57-60 and col.6, lines 56-64, Jindal);
- means for selecting one or more of the replicas to distribute based on the utilization of the servers (col.6, lines 31-45 and 56-64, Jindal);
- means for identifying one or more of the servers to which to move the one or more replicas (col.6, lines 31-45 and 56-64, and col.8, line 53 to col.9, line 27 Jindal); and
- means for redistributing the one or more replicas to the identified one or more servers (col.6, lines 31-45 and 56-64, and col.8, line 53 to col.9, line 27 Jindal) to at least one of increase reliability of the chunks, increase availability of the chunks, or increase bandwidth utilization in the system (col.6, lines 31-45, Jindal).

Jindal, however, does not explicitly disclose the replicas. Narendran, on the other hand, discloses data distribution techniques for load-balanced fault-tolerant web access including

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redistributing replicated data from the failed server to achieve rebalance (see col.12, lines 12-38, Narendran). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the redistributing or rebalance technique of Narendran to derive the invention as claimed. The motivation of doing so would have been to provide an efficient system that can obtain a maximum flow with a minimum cost of a network flow system (abstract of Narendran).

Regarding claim 27, Jindal discloses a file system, comprising:

- a plurality of servers configured to store replicas of chunks of data (abstract; summary; col.5, lines 57-60 and col.6, lines 56-64, Jindal); and
- a master ("central server", abstract) connected to the servers, the master being configured to:
 - o select one or more of the replicas to distribute based on utilization of the servers (col.6, lines 31-45 and 56-64, Jindal),
 - o identify one or more of the servers to which to move the selected one or more replicas (col.6, lines 31-45 and 56-64, and col.8, line 53 to col.9, line 27 Jindal), and
 - o move the selected one or more replicas to the identified one or more servers (col.6, lines 31-45 and 56-64, and col.8, line 53 to col.9, line 27 Jindal).

Jindal, however, does not explicitly disclose the replicas. Narendran, on the other hand, discloses data distribution techniques for load-balanced fault-tolerant web access including redistributing replicated data from the failed server to achieve rebalance (see col.12, lines 12-38, Narendran). It would have been obvious to one of ordinary skill in the art at the time of the

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invention was made to utilize the redistributing or rebalance technique of Narendran to derive the invention as claimed. The motivation of doing so would have been to provide an efficient system that can obtain a maximum flow with a minimum cost of a network flow system (abstract of Narendran).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh B. Thai whose telephone number is 571-272-4029. The examiner can normally be reached on 8 AM - 4:30 PM.

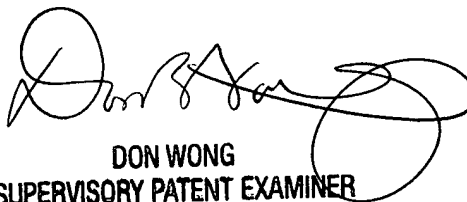
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hanh B Thai
Examiner
Art Unit 2163

October 26, 2006



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